AMENDMENTS TO CLAIMS

Please amend the claims without prejudice. The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-139. (Canceled).

140. (Currently amended) ~~The~~ A fiber optic flow sensor ~~of claim 139~~ adapted to be disposed in a wellbore, comprising:

a fiber optic line carrying an optical signal;

a spinner adapted to spin when in contact with fluids flowing through the wellbore; and

a modulator functionally connected to the spinner, the modulator modulating the optical signal depending on the spinning of the spinner,

wherein the modulator is located on the spinner and the spinner and modulator are constructed so that the modulator becomes aligned with the fiber optic line once every revolution of the spinner.

141. (Previously presented) The system of claim 140, wherein a pulse is reflected through the fiber optic line each time the modulator becomes aligned with the fiber optic line; and an acquisition unit receives the reflected pulse and determines the velocity of the fluids flowing through the wellbore based on the frequency of reception of the reflected pulses.

142. (Previously presented) The sensor of claim 140, wherein the spinner includes a blade coupled to a disc.

143. (Previously presented) The sensor of claim 142, wherein the blade is located external to a housing of the spinner, and the disc is located internal to the housing.

144. (Previously presented) The sensor of claim 143, wherein the housing is sealed.

145. (Previously presented) The sensor of claim 143, wherein the blade and the disc are magnetically coupled across the housing.

146. (Previously presented) The sensor of claim 142, wherein the modulator is located on the disc.

147. (Previously presented) The sensor of claim 146, wherein the modulator is located at a side of the disc.

148. (Canceled).

149. (Currently amended) ~~The~~ A fiber optic flow sensor ~~of claim 148~~ adapted to be disposed in a wellbore, comprising:

a fiber optic line carrying an optical signal;

a spinner adapted to spin when in contact with fluids flowing through the wellbore; and

a modulator functionally connected to the spinner, the modulator modulating the optical signal depending on the spinning of the spinner,

wherein the optical signal is modulated by imparting a strain on the fiber optic line,

wherein the modulator comprises a fiber-bragg grating incorporated on the fiber optic line.

150. (Previously presented) The sensor of claim 148, further comprising:

a permanent magnet coupled to the spinner;

a coil attached to a housing; and

wherein the permanent magnet and the coil become magnetically connected as the spinner revolves.

151. (Previously presented) The sensor of claim 150, wherein the magnetic connection generates a voltage that causes a piezoelectric material mechanically coupled to the fiber optic line to constrict and strain the fiber optic line.

152. (Previously presented) A method to calculate the flow of fluids within a wellbore, comprising:

providing a spinner adapted to spin when in contact with fluids flowing through the wellbore; and

modulating an optical signal transmitted through a fiber optic line depending on the spinning of the spinner wherein said modulating step comprises aligning a modulator with the fiber optic line once every revolution of the spinner.

153. (Previously presented) The method of claim 152, further comprising determining the velocity of the fluids flowing through the wellbore based on the frequency of modulations.

154. (Previously presented) A method to calculate the flow of fluids within a wellbore, comprising:

providing a spinner adapted to spin when in contact with fluids flowing through the wellbore; and

modulating an optical signal transmitted through a fiber optic line depending on the spinning of the spinner wherein said modulating step comprises imparting a strain on the fiber optic line.

155. (Previously presented) The method of claim 154, wherein the imparting step comprises:

creating a magnetic connection related to the revolution of the spinner; and

generating a voltage that causes a piezoelectric material mechanically coupled to the fiber optic line to constrict and strain the fiber optic line.

156.-175. (Canceled)